



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,898	03/26/2004	Toyokazu Hori	XA-10055	7691

181 7590 03/29/2007  
MILES & STOCKBRIDGE PC  
1751 PINNACLE DRIVE  
SUITE 500  
MCLEAN, VA 22102-3833

EXAMINER
----------

PEREZ, JULIO R

ART UNIT	PAPER NUMBER
----------	--------------

2617

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/29/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/809,898	<b>Applicant(s)</b> HORI ET AL.	
	<b>Examiner</b> Julio R. Perez	<b>Art Unit</b> 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 March 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-9 and 11 is/are rejected.
- 7) ☒ Claim(s) 4 and 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/26/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 1 is objected to because of the following informalities: On line 9, change "transfer" to -- transmission --. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2, 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ho et al. (US 20030174790A1) in view of Wang et al. (US 20040240376A1).

Regarding claims 1, 5, Ho discloses estimating a DC offset occurring at a receiving side by using the received preamble (par. 67, teaches an DC offset estimator (circuit estimator) for receiving packets with preamble); processing for correcting the DC offset on the received data transfer symbol, based on the estimation result of the DC offset (pars. 67, 68, 69. Note that pars.67, lines 9-12, 69, lines 3-5, teach improving the product of the data packet after estimation of DC offset, thus, teaching correction of the DC offset according to estimation of DC offset); and processing the DC offset corrected data transmission symbol (pars. 71, 79, 83-90, teach recovering of the data

Art Unit: 2617

packets transmitted), **but is silent on** receiving an OFDM packet including a preamble and a following data transmission symbol packet with the data transmission symbol.

Wang teaches channel response estimation for an OFDM communication system based on normal training symbols with receiving at least one preamble symbol on a transmitted frame (pars. 48, 54, teach receiving at least a preamble symbol of a transmitted data frame received).

It would have been obvious to one skilled in the art at the time of the invention to modify Ho, such that receiving OFDM packets with preamble, provide resistance to multi-path interference and frequency selective fading in the system.

Regarding claim 2, the combination of Ho and Wang discloses claim 1, further correcting a frequency offset of the received preamble, in which the DC offset is estimated by using the frequency offset corrected preamble (Ho, pars. 67, 68, 69, teach improving the product of the data packet after estimation of DC offset, thus, teaching correction of the DC offset according to estimation of DC offset).

4. Claims 3, 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ho et al. in view Nafie et al. (2001/0033601).

Regarding claims 3, 6, Ho teaches claim 1, but is silent on the DC offset estimation processing, low pass filtering processing is performed on the received preamble with a passband narrower.

Nafie teaches filtering offset voltage with pass-band filtering the signal (par. 18, lines 37-52).

It would have been obvious to one skilled in the art at the time of the invention to modify Ho, such that the filtering process, provides the preamble with narrowing intervals during the preamble.

5. Claims 7-8, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ho et al. (US 20030174790A1) in view of Wang et al. (US 20040240376A1).

Regarding claims 7, 11, Ho discloses a DC offset estimating unit (Figure 4, #'s 415-416) for estimating a DC offset occurring at a receiving side by using the received preamble (par. 67, teaches an DC offset estimator (circuit estimator) for receiving packets with preamble); a DC offset correcting unit for correcting the DC offset on the received data transmission symbol, according to the estimation result of the DC offset (pars. 67, 68, 69. Note that pars.67, lines 9-12, 69, lines 3-5, teach improving the product of the data packet after estimation of DC offset, thus, teaching correction of the DC offset according to estimation of DC offset); and recovering the DC offset corrected data transmission symbol (pars. 71, 79, 83-90, teach recovering of the data packets transmitted), **but is silent on** receiving an OFDM packet including a preamble and a following data transmission symbol packet with the data transmission symbol.

Wang teaches channel response estimation for an OFDM communication system based on normal training symbols with receiving at least one preamble symbol on a transmitted frame (pars. 48, 54, teach receiving at least a preamble symbol of a transmitted data frame received).

It would have been obvious to one skilled in the art at the time of the invention to modify Ho, such that receiving OFDM packets with preamble, provide resistance to multi-path interference and frequency selective fading in the system.

Regarding claim 8, Ho discloses claim 7, further correcting a frequency offset of the received preamble, in which the DC offset is estimated by using the frequency offset corrected preamble (Ho, pars. 67, 68, 69, teach improving the product of the data packet after estimation of DC offset, thus, teaching correction of the DC offset according to estimation of DC offset).

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ho et al. in view Nafie et al. (2001/0033601).

Regarding claim 9, Ho teaches claim 7, but is silent on the DC offset estimation processing, low pass filtering processing is performed on the received preamble with a passband narrower.

Nafie teaches filtering offset voltage with pass-band filtering the signal (par. 18, lines 37-52).

It would have been obvious to one skilled in the art at the time of the invention to modify Ho, such that the filtering process, provides the preamble with narrowing intervals during the preamble.

#### ***Allowable Subject Matter***

7. Claims 4, 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the

Art Unit: 2617

indication of allowable subject matter: The cited prior art teaches receiving data packets with preamble and estimating DC offset voltage and compensating with defects on transmission (correcting) and filtering the DC offset voltages with pass-band filtering. On the other hand, the applicant's application teaches OFDM demodulation method, in which in the DC offset estimation processing with low pass filtering processing being performed on the frequency offset corrected preamble in which that arbitrary time of getting a maximum output value of an oscillator for use in the frequency offset correction is set at zero and that a period of time is set at a range of  $-T$  to  $T$ , with a pass-band narrower than the sub-carrier interval of the preamble. These limitations, have not been disclosed, taught, or made obvious over the prior art of record.

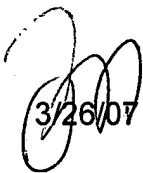
### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julio R. Perez whose telephone number is (571) 272-7846. The examiner can normally be reached on 10:30 - 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William G. Trost can be reached on (571) 272-7872. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

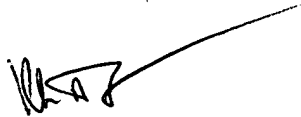
Art Unit: 2617

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



3/26/07

Julio R Perez  
Examiner  
Art Unit 2617



WILLIAM TROST  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600